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# WEEKLY STATION REPORTS

OF THE DIVISION OF

## DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

GPO 46148

JUL 6 1940

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prior consent of this division.

REPORT FOR WEEK ENDING JULY 6, 1940.

HAVRE:

Scattered showers which characterized the weather for the week finally culminated in a thunderstorm Friday afternoon amounting to 0.32 inch. In higher elevations near the mountains hail was reported in some areas, but the extent of damage to crops was not learned. Although temperatures have steadily mounted as the season progressed, heat damage has been less, except in one or two instances, than expected because of the relatively high humidity.

Activities in the experimental field consisted of harvesting winter rye, plowing July fallow plats, thinning corn, spraying potatoes, and miscellaneous hoeing. Poisoning grasshoppers, which are now approaching the adult stage, still continues whenever temperatures are favorable for feeding. No flights of these insects have been reported to date.

In the farm department, alfalfa fields are receiving irrigation subsequent to removal of the first crop. Owing to a combination of blister beetle and heat damage, the Ladak alfalfa in field C failed to set seed and was put up for hay during the week.

Interest in the flora of this area has become widespread due, in part, to the plentitude of herbage occasioned by heavy spring precipitation. In response to numerous requests for grass, weed, and other plant identification, collections aimed toward the establishment of a station herbarium were begun this week. Over 100 specimens are in the presses now, with indications of many more which have not as yet flowered.

The campus irrigation system was tested and found capable of delivering up to 500 gallons of water per minute. Many row plantings of trees, station lawns, and other areas are receiving a thorough irrigation for the first time in station history.

Maximum temperature, 94°; minimum, 52°; precipitation, 0.34 inch.

JUDITH BASIN:

The past week has been variable with maximum temperatures below 80°. Three small showers have been helpful to crops and pastures which need rain badly. Most fallow was cultivated, and all row crops were cultivated for the first time. Odd plots and bulk fields have been cut for hay. The late or past-the-anther stage of crested wheatgrass has been cut and stacked for the winter feeding experiments.

Summer Pasture Experiment: Steers were weighed on July 3, the regular 28-day period, showing the following gains:

| Acres of pasture | Kind of pasture | Steers, Number | Average gain Steer | Average gain Steer per day |
|---|---|---|---|---|
| 23.6 | Crested wheatgrass (reg) | 12 | 59.6 | 2.1 |
| 11.6 | Crested wheatgrass (rot) | 12 | 82.9 | 3.0 |
| 23.6 | Bromegrass | 8 | 93.1 | 3.3 |
| 23.6 | Native grass | 4 | 53.7 | 1.3 |

A summary to date of this seasons gains on equal-sized pastures (23.6 acres each) is given below:

| Days pastured | | | Steers, | Average gain | |
|---|---|---|---|---|---|
| Total | Season | Kind of pasture | Number | Steer | Steer per day |
| | | | | Pounds | Pounds |
| 840 | 70 | Crested wheatgrass (reg) | 12 | 224.2 | 3.2 |
| 840 | 70 | Crested wheatgrass (rot) | 12 | 268.7 | 3.8 |
| 448 | 56 | Bromegrass | 8 | 203.8 | 3.6 |
| 224 | 56 | Native grass | 4 | 165.0 | 2.9 |

At present bromegrass and the rotation crested wheatgrass pastures are in the best condition. If the dry weather continues native grass pasture cannot be expected to continue gains for more than three to four weeks. Present results indicate that by rotation grazing increased gains are obtained by the utilization of the crested wheatgrass when it is most nutritious.

Total precipitation for the first six months of the year is 7.38 inches which lacks 0.66 inch of the 31-year station average.

Maximum temperature, 89°; minimum, 51°; precipitation, 0.15 inch.

HUNTLEY:

Growing conditions during the week were favorable to corn and sorgo but small grains continued to burn. Winter wheat is beginning to turn; that on fallow appears to be ripening normally, but on the continuous cropping plots it is drying ripe. Winter rye is about ready to harvest.

Field work consisted of plowing under peas and sweetclover for green manure and plowing the late fallow plots in the methods of fallow series. Duckfoot cultivation of the other fallow plots was begun. Peas in the duplicate pasture rotation were mowed for hay.

Light showers fell during the week, but at the station most of the moisture was lost by evaporation before it could reach root depths. These showers coming in late afternoon served to cool the atmosphere so that wilted crops revived during the night. Heavy rains of a torrential nature fell in nearby localities and are reported to have done considerable damage to crops and fields.

Maximum temperature, 98°; minimum, 52°; precipitation, 0.20 inch.

SHERIDAN:

Considerable cloudiness with widely scattered showers, none of the showers of any consequence in the vicinity of the station, prevailed over this section the most of the week. Temperatures were slightly above the seasonal average.

Winter wheat and early sown barley and oats ripened rapidly, apparently well filled. The condition of most other small grain grew steadily worse, with crops on some fallow beginning to fire. An exception to this is the small grain variety test, where heavier precipitation was received June 19 than over the remainder of the station, and the crop condition there is excellent. Corn and other late forage crops made a rapid growth. Corn is beginning to tassel and also to curl during the day.

The first date of seeding barley was harvested July 5. Sheep were weighed and ewes with lambs moved to annual crops pasture.

Maximum temperature, 95°; minimum, 50°; precipitation, 0.08 inch.

DICKINSON:

Grain crops are firing badly in many fields as a result of continued dry weather. The temperature reached 96° on Friday, the highest for the summer to date. In two thundershowers only 0.11 inch was recorded.

Wheat is past full bloom and oats are a little further advanced. Unless heavy rains come within a few days, yields will be below average in spite of the excellent start made early in the season. Grains on fall-plowed land in rotations are so short that they will be difficult to harvest with a binder. Most of the grain on farms in the district will be cut with a header in order to handle the short straw.

The orchard was given a third spraying during the week, using Dutox and nicotine sulphate. Most of the cedars were sprayed with lime sulphur to aid in the control of red spider. A few trees were heavily infested and show considerable injury. Potatoes were dusted with Dutox for blister beetles.

To date practically no hoppers have been noted about the Station or in the locality. No poison has been spread at the Station. During the past three years great numbers of hoppers have moved in during the first ten days of July.

Seed of Big bluegrass (Poa ampla) and Russian wildrye (Elymus junceus) were harvested in the nursery.

Maximum temperature, 96°; minimum, 55°; precipitation, 0.11 inch.

MANDAN:

Arboriculture: Cultivation and hoeing of weeds has been carried on the entire week. Weeds are making rapid growth everywhere at the present time. The American elm nursery has been replanted, the first planting having failed to break through the crust. Rain is badly needed for all types of growth and unless it is received in the near future, seedling growth is going to stop. Blister beetles are now causing severe injury on Siberian pea-tree and honeylocust seedlings. Spraying and dusting repels them for only a short time.

Horticulture: Horticultural plants are badly in need of rain. Plums and apples do not show serious damage as yet, but the small fruits need rain to size up the fruit, especially the raspberries. The third cultivation and spraying of the orchards has been in progress most of the week. Juneberries are ripening and should be ready to pick the first of the week. The shrubbery groups and the acre garden were cultivated, hedges trimmed, and tulips dug during the week. A few heads of cauliflower were harvested from the garden, but due to the dry weather the quality was poor. Blister beetles have been causing considerable damage to potatoes.

Agronomy: Haying operations on all blocks and plots were completed during the week. Yields of hay in plot trials and rotations ranged from slightly under ½ ton per acre from bromegrass in rows to more than 2 tons per acre from a crested wheatgrass-alfalfa mixture. Sharp reductions in crop prospects due to soil moisture exhaustion are in evidence in many rotations where grain follows grain, especially on fall plowing. Grains on corn ground are still looking pretty fair and grains on fallow are of course very good. The past two days have been unseasonably hot with no rain occurring during the week.

Maximum temperature, 98°; minimum, 48°.

Cooperative Grazing Experiment: Steers in the various pastures put on good gains during June. The gains on the cultivated pastures might have been better if there had been more rain to support the heavy growth.

Pastures are all badly in need of moisture at present. The native grass crop is practically made for the year. Rain would help to keep blue grama green.

The following table shows the steer gains in the various pastures for June and for the season to date.

| Pasture (acres) | Kind of pasture | Number of steers | Gain per head (lbs.) June | Gain per head (lbs.) 45 days |
|---|---|---|---|---|
| 100 | Native | 10 | 90.0 | 155.0 |
| 70 | Native | 10 | 87.0 | 149.5 |
| 50 | Native | 10 | 100.0 | 163.5 |
| 30 | Native | 10 | 98.5 | 159.5 |
| 70 (Rot.) | Native | 14 | 91.4 | 146.8 |
| 7 | Crested wheat | 4 | 98.8 | 170.0 |
| 12.5 1/ | Crested wheat | 12 | 77.5 | 142.1 |
| 10 2/ | Mixed | 10 | 83.0 | 143.5 |
| 6 3/ | Mixed | 5 | 97.0 | 160.0 |

1/ Half was cut for hay early in June.
2/ Half was fenced off May 25 and cut for hay early in June.
3/ Part was cut for hay early in June.

BELLE FOURCHE: (Week ending June 29)

Cool weather throughout the week was favorable to the recovery of crops surviving the destructive hail on June 22, but rain is needed to soften the exceptionally thick, heavy soil crust that formed following the storm. Oats, generally are beginning to make a second growth, and flax and barley are sending out a surprisingly large number of new shoots, but spring wheat, winter wheat, and winter rye show only very limited signs of life. Potatoes and sorgo are making rapid and complete recovery, but about 20 percent of the corn failed to resume growth. Fall-seeded grass survived the storm with relatively little injury, but most of the competitive weed growth was destroyed by the hail.

Livestock ranges, particularly northwest of Newell, are in excellent condition. Native grasses have made remarkable recovery from the effects of the previous succession of dry years, and a heavy crop of native hay is being harvested.

Field work included clipping a number of grain plots, plowing sod land, and duckfooting roads.

Maximum temperature, 84°; minimum, 49°; precipitation, none.

BELLE FOURCHE: (Week ending July 6)

Warm weather prevailed most of the week, and the last two days were quite hot. No precipitation in measurable amounts was received, and plant growth is being retarded by lack of moisture. Corn is recovering very slowly from the effects of the hail storm on June 22, and second growth oats are nearly at a standstill. Potatoes and sorgo are the only annual crops making good progress. Spring seeded sweetclover is recovering satisfactorily, and a possible second crop of alfalfa is well started, but crested wheatgrass has made very little new growth except in favored low spots.

Field work included cultivating corn, sorgo, potatoes, and alleyways; duckfooting fallow; some hand replanting of corn; and soil sampling.

Maximum temperature, 96°; minimum, 56°; precipitation, trace.

ARCHER:

The weather during the week was cool and wet, which was an abrupt change from that which prevailed during June. The precipitation consisted of three main showers -- 0.44 inch June 30, 0.65 inch July 2, and 0.69 inch July 3. The rains were rather gentle with but little run-off and were of great aid to crops and pastures. The late-seeded crops such as corn, potatoes, beans, millet, Sudan grass, and sorghums were most benefited by the rains.

Owing to the wet condition of the soil, field operations were discontinued until July 6 when the cultivation of the corn in the dairy field and the increase plots in the experimental field was resumed.

John S. Cole of the Division of Dry Land Agriculture and Director W. L. Quayle of the University of Wyoming were station visitors.

Maximum temperature, 91°; minimum, 52°; precipitation, 1.80 inches.

NORTH PLATTE:

Little more than a trace of precipitation has been recorded for four weeks. The total precipitation for June was 3.06 inches or 0.11 inch below the average for the month. The accumulated deficit for the year since January 1 is 3.78 inches.

Cool weather prevailed throughout the week. There has been less damage to crops than in 1934 because of the below normal temperatures.

Most of the harvest was completed during this week. Only wheat on fallow and after potatoes was harvested. Some fallowed plots were failures. No spring small grain will be harvested. The corn has been given a second cultivation and is making good growth although moisture would be very beneficial.

Visitors during the week included John S. Cole, Dean W. W. Burr, H. M. Tysdal, H . O. Werner, and G. A. Wiebe.

Maximum temperature, 94°; minimum, 56°; precipitation, 0.03 inch.

AKRON:

June passed without recording a maximum of 100°, and with 4.53 inches of precipitation, still the general aspect the past three weeks has been that the weather has been very hot and dry. A light rain of 0.20 inch fell on Sunday, the last day of the month, to be followed by cloudy, cooler weather but by this week-end the maximum is again reaching up near the 100° mark.

Rate of seeding proso experiment was planted Monday with reasonable hope of immediate emergence, but by this week end it appears that the cooler weather with lower transpiration rate did not persist long enough. Methods of fallow O-P plot and the summer-plowed plots of Rotations 31 and 32 were plowed during the week. Corn and sorghums are making slow progress. Rotation corn now stands about knee high. Spring wheat which escaped the hail damage is now burning severely. Harvest was started with the cutting of the rate and spacing project oats and certain of the date of seeding plots of the small grains. Grain sorghum varieties on fallow were counted. No thinning was necessary since in most cases the stands were not as good as were expected and desired. Rate of seeding bean experiment was thinned to the desired spacings this week end.

Maximum temperature, 95°; minimum, 50°; precipitation, 0.20 inch.

COLBY:

Saturday and Sunday were very hot and windy, but following a general rain Monday, unusually chilly weather continued the rest of the week. The rain came too late to be of benefit to the small grains, but coming as it did in easy showers, it was very welcome for the row crops, especially the late planted sorghums which were needing surface moisture and cooler weather to get established. All row crops are now making rapid growth.

It was Friday afternoon before the heads of small grains were dry enough for combining. The spring wheat and oats plots were combined Friday afternoon, and the barley plots were combined this morning. The straw was

short, particularly the oats straw. The rain hastened the growth of thistles in the plots so that the grain was very weedy with green thistle tips. The yields were all below 10 bushels to the acre, with Reward spring wheat outyielding the oats and barley in pounds to the acre. The spring wheat was badly shriveled, and the oats and barley light. It appears that only two plots of winter wheat will be worth cutting, and the grain on these is in the soft dough stage.

Precipitation, June, 1940, 1.15 inches; 53-year average, 2.77 inches. Precipitation, January - June, 1940, 6.87 inches; 53-year average, 8.99 inches.

Maximum temperature, 101°; minimum, 52°; precipitation, 0.84 inch.

HAYS:

The best news of the week is that a genuine rain occurred. It commenced raining about 6 p.m., July 1 and stopped raining about the same time the next day. The total of 3.61 inches was made up of light showers that occurred intermittently throughout the 24-hour period with time enough between showers to permit the largest possible amount of the water to enter the soil. Only a comparatively small amount of water was lost by run-off, and that occurred during the last part of the storm after the surface had become thoroughly saturated. The surface soil is very wet, and the wheat fields are not yet dry enough to carry the harvesting machinery without danger of getting stuck in the mud.

Threshing of barley and oats on the plots, all of which were harvested with a mower, was finished in the afternoon just ahead of the big rain.

The spring wheat on the plots was combine-harvested yesterday and an attempt was made at harvesting a few plots of winter wheat, but without much success. Some of the grain is a little green for combining, and the luscious growth of redroot, lambsquarter, and Russian thistles, many of which are now as tall as the wheat, choked the combine frequently. So many wet weed stems and so much juice from the weeds came through with the grain that it is not marketable, nor can it be kept in storage by any method. This means that by the time the wheat is dry enough for combining it will be impossible to combine-harvest the wheat on the plots, because of the weeds which are already too heavy and are now making a vigorous growth.

On the commercial fields of the station the wheat (Tenmarq) is a little drier or riper than on the plots, but the weed condition is about the same. The wheat on these fields is being cut with a windrow machine and will later be threshed with a combine having a pick-up attachment.

In this vicinity many fields of wheat have been abandoned. In the remaining fields it is being harvested by various methods, including headers, a few binders, and some combines. Both the binders and combines are being used with much difficulty on account of the weeds. The Russian thistles are so large they are almost too much for the binders to handle.

There are very few farms on which the wheat yields rate from fair to good. These represent localities where enough rain occurred to produce a stand in the fall or winter. In such fields the wheat is thicker, developed earlier, and there are fewer weeds.

Excellent yields of wheat are being reported from the eastern third of the State and in the northwestern corner of the State.

The row crops are making rapid growth since the rain and the sown feed crops, which were suffering from drought before the rain, are much improved.

Maximum temperature, 94°; minimum, 55°; precipitation, 3.61 inches.

GARDEN CITY

Three rains this week amounted to 0.89 inch. One was 0.84 inch. This fell in a short time and some run-off resulted. Temperatures were rather cool during the week and no maximum reached 100°.

Temperatures for the month of June were nearly average, and the month as a whole was quite pleasant. The maximum temperature was 100° or above on only three days and the highest was 103°. The average wind velocity for the month was 9.0 m.p.h. which is slightly below the long time average.

The rains have thickened the stands of sorghums by germinating some of the seed which had failed to come up. However, some of the listed plots washed slightly, and on others the seed was covered rather deep. Harvest was started Saturday and some very good yields were received. The County Agent reports that many of the farmers will be greatly disappointed with the yields of winter wheat that did not come up until this spring. The wheat in some areas has rather fine looking heads but it has failed to fill. In other areas the grain is shriveled.

Field work consisted of trimming barley plots, thinning sorghums, taking soil moisture samples and harvesting barley.

Maximum temperature, 99°; minimum, 53°; precipitation, 0.89 inch.

TUCUMCARI:

Thinning of experimental plots and cultivation of plots and increase land were the main lines of station work the past week. The final planting, expected to be made in early July, has not been attempted, for the surface soil is dry.

During June only 0.28 inch precipitation was received, while in July to date the total is 0.26 inch, the latter received in three showers. Cooler temperatures and a number of cloudy days the past week have aided row crops and ranges which are in need of moisture. This year to date has been consistent with the preceding years. Precipitation of 5.32 inches since January 1 is 72 percent of normal for the period. The six years, 1934-39, averaged 72 percent of normal precipitation.

Maximum temperature, 99°; minimum, 56°.

DALHART:

This local area continues dry. The precipitation since June 1 is 0.28 inch. Corn on the rotations has reached a height of 10-12 inches and is wilting during the middle of the day. Kafir and milo on the rotations is at the 3-4 inch height. Some of these sorghum seedlings are growing normally (chiefly on fallowed and fall-plowed land), while the others are either reaching a dormant stage or, in a few cases, the plants seem to be deteriorating. The first date of planting of the sorghum varieties appear to have retarded growth but otherwise they are growing normally. The varieties on fallow are growing seasonally slow.

Thinning has been completed on the rotations. There remains about one day's thinning of nursery sorghums which are of sufficient size to thin.

Sorghum varieties in the last date of planting are going to show rather spotted stands; these were planted on June 24 in unfavorable soil conditions. A Sedan kafir nursery planted at the same time is showing excellent emergences in nearly all rows. The sorghum smut nursery planted at an earlier date is showing only scattered emergences. If rain comes this month a milo-disease nursery, a late date of planting, and a cover crop will still be planted in some increase fields.

Maximum temperature, 95°; minimum, 55°; precipitation, trace.

BIG SPRING:

Weather conditions during the week were very favorable for growing crops and for germination and emergence of seed recently planted. Much replanting, mainly of feed crops on land that blew out or was washed out last week, has taken place throughout the county this week. This condition has caused crops to be very spotted, irregular in size and of rather poor stands in this area.

Station crops are making a good growth at present, but size of plants and stands of milo and kafir are rather irregular. Thinning and cultivating sorghums has required the attention of most of the Station force during the past week. The second date-variety of grain and forage sorghums and all milo and kafir plots in the rotations were thinned, as was also the sorghum nursery and milo spacing plots. Four varieties of early maturing grapes were picked.

Maximum temperature, 99°; minimum, 59°; precipitation, 0.45 inch.

LAWTON:

With the exception of a maximum temperature of 97° on Monday, July 1, temperatures for the week were the lowest since 1931. The minima ranged from 58° to 67° and the maxima from 77° to 85°.

The ground dried slowly after a rain of 1.59 inches on the 1st and 0.21 inch on the 2nd. But little threshing was possible after the rains, and oats dried slowly, requiring much handling. A luxuriant growth of cowpeas was plowed under on green manure plots on the 5th.

Prospects for maximum production of corn and sorghums are now the best for several years in the southwestern part of the State.

WOODWARD:

Moderate temperatures, partly cloudy skies, and relatively light wind movement prevailed during most of the week. A severe storm Monday evening accompanied by strong winds, 2.06 inches of torrential rain and sporadic hail, broke branches from a number of trees, washed out or silted over listed plots, and started gullies in a few places. Very little precipitation was received in the Spring Creek drainage basin, only a slight rise occurring in the reservoir.

Corn in the D.L.A. project suffered to some extent from hail, but the crop in general now appears benefitted by the rainfall. Listed sorghum plots recently planted had to be reseeded, and some uncovering was necessary in parts of many surface planted plots. All fallow and row crops except corn were cultivated as soon as possible after the rain. Fortunately the harvest of wheat and other small grains at the station was completed just prior to the storm, thus avoiding the shattering which occurred locally in many unharvested fields.

First ripe, Bison and Danmark, tomatoes were picked from the April 15 planting. Some early sown sweet corn has reached the roasting-ear stage, and a few quick growing summer squash are fit for use. Hail injury to corn, tomatoes, lettuce, and various garden vines was rather severe. Grapes also suffered considerably. Numerous broken branches, especially Chinese Elm, were cleaned up around the campus, and a few trees damaged beyond repair were removed. Buffalo grass lawns set out in 1940 are doing very well.

Selections of sandbluestem (Andropogon hallii) primarily for leafiness have been made in one of the grass nurseries. Contour strips and terraces on the S.C.S. farm held satisfactorily during the very rapid run-off. Weeding and cultivating increase grass blocks continued. A C.C.C. crew began

the construction of boundary fences at the experimental range unit.

Mr. V. C. Hubbard, Junior Agronomist, Division of Cereal Crops and Diseases, formerly project leader in small grain breeding here, was transferred July 1 to the Division of Dry Land Agriculture in charge of crop rotation and tillage method investigations at this station.

Maximum temperature, 97°; minimum, 56°; precipitation, 2.24 inches.

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JUL 13 1940

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REPORT FOR WEEK ENDING JULY 13, 1940.

HAVRE:

High temperatures caused further damage to all spring-sown cereals. It appears now that spring wheat will be around 50 percent below normal.

Grasshopper flights were noticed on three occasions during the week. On Tuesday a light flight moving south, Thursday a heavy flight moving northwest, and Friday a heavy flight moving west. Very little damage to grain crops has been observed so far on the station.

Farm work consisted of plowing up the balance of the poor alfalfa in F-1 field, cultivating trees, spreading hopper bait, and harvesting a pretty fair crop of crested wheatgrass seed. Irrigation of the campus with the newly installed pumping irrigation system was continued.

In the experimental fields harvesting of winter wheat on the tillage plats, the variety tests, and in the nursery was completed. The grain hay plats were cut and weighed. Selfing and crossing of the inbred lines of corn in the corn breeding project were also begun.

The livestock at the lease seem to be doing fine with an abundance of grass. Two bulls went lame and had to be treated but are practically recovered now.

Visitors included H. B. Mills of the Entomology Department, Montana State College, and Max Legge, Field Representative for the Production Credit Association.

Maximum temperature, 96°; minimum, 44°; precipitation, 0.26 inch.

JUDITH BASIN:

The hottest weather of the season has resulted in severe firing of many spring sown plantings. There have been several threats of rain, but only a trace was recorded. The winter wheat is drying and ripening rapidly. Corn is being cultivated for the second time.

Southeast winds on Monday brought the first infestation of grasshoppers which have continued to increase and are doing considerable damage to barley, oats, and corn. Poison bait has been spread and must be continued to combat the infestation.

Approximately all our hay has been cut and but little remains to be stacked. Yields of crested wheatgrass for hay are from 30 to 50 percent lower than last year.

A belt transect has been run on the abandoned land crested wheatgrass plantings on the "South Bench", and the seedling counts will be of special interest.

The machinery has been removed from the machine shed and other preparations begun for the 31st Annual Picnic which is to be held at the station on the 18th.

Maximum temperature, 95°; minimum, 41°; precipitation, Trace.

SHERIDAN:

Hot weather continuing over almost the entire week either ripened or dried the most of the grain not already ripe. Harvesting was continued intermittently as the grain became ready. Cutting of winter wheat was completed except for some of the continuous cropping plots where the stand is

very poor and Rotation No. 37, on potato ground, where the wheat did not emerge until late this spring. Some of the rotation oats and spring wheat that was fired the most was harvested, and the most of the remainder of the grain still standing probably will be ready the first of the coming week, except spring wheat and late maturing oats in the varieties.

Crop conditions generally over this section are quite spotted, depending upon the precipitation received from local showers. Apparently conditions on the station are about as poor as anywhere. Corn still looks good early in the day, but it appears unlikely that there will be any crop without considerable rain. Sudan grass is growing rapidly. Light hail on the 6th, which included a small proportion of large hail stones, shredded corn leaves to some extent. Corn and other row crops were cultivated.

Maximum temperature, 103°; minimum, 53°; precipitation, 0.18 inch.

DICKINSON:

Drought continued through the week, but lower temperatures the last few days favored all vegetation.

Precipitation during the last five weeks has been only about a third of normal, so the soil is now extremely dry. Crops on fallowed land still have a possibility of making average yields, but on other tillage methods the outlook is for yields below normal with very low yields on fall plowed land. Oats on the rotations are nearly ripe, and most plots will be harvested the first of the week.

In the orchard the fruit is making little development and some is dropping because of the drought.

Dr. Sprague is making a study of the grains in the Rotations for root rot, fungi, and other diseases.

Visitors included Dr. S. C. Salmon, Cereal Crops and Diseases, W. R. Chapline, Forest Service; and Gus Geiszler and Tom Gildersleeve, N. Dakota Extension Service.

Maximum temperature, 95°; minimum, 48°; precipitation, T.

MANDAN:

Horticulture: Juneberries, red currants, Nanking cherries, and part of the gooseberries were picked during the week. The Success variety of Juneberry again showed up better than other selections and varieties under test. Red Cross, a small fruited variety, was the highest yielder among the currants. Red Lake appeared to be the best of the large fruited varieties. Nanking cherries are bearing a heavy crop. P. I. numbers 69059, 69058 are showing up very good this year. They are early, large, and of good quality. Some of the station selections also look good. Gooseberries suffered some sunscald during the week. Raspberries are starting to ripen. Newbourgh looks better than usual. All small fruits are producing good yields, but many plants are now showing signs of drought injury. Rain is badly needed.

Sweet corn selections and tomatoes in variety tests are still holding their own, although some strains are showing the effects of the continued drought, i.e. "firing", blasting of pollen, etc. Vegetables being harvested from the acre garden at the present time include peas, wax beans, beets and cauliflower. The lawns of the station are being irrigated again this week. Shrubs in bloom at the present time include hybrid rugosa roses, Tamarix odessana, and Sorberia sorbifolia. Perennial flowers are at their best and include the following species: Gypsophila raniculala, Chrysanthemum Cucanthemum, Gaillardia, Platycodon, Hemerocallis fulva, and Thunbergiana Lillicum regale, and Delphinium chinense and hybrids.

**Agronomy:** Weather conditions for the week have been for the most part moderate with a light rain on the morning of the 10th. With soil moisture near the exhaustion point under even the better tillage practices, it is fortunate that hot drying winds have not prevailed. Crested wheatgrass is turning brown in the milk and soft dough stage. Winter rye in the rotation tillage experiments was harvested on the 10th. Owing to poor filling the crop will be light.

Maximum temperature, 95°; minimum, 50°; precipitation, 0.26 inch.

MILLE FOURCHE:

Hot weather prevailed most of the week, and the first 100° temperature of the season was recorded on July 13. Precipitation was limited to one light thunder shower, and the soil is becoming very dry. Second growth oats is attempting to head, but there is little likelihood of sufficient grain being produced to justify harvesting. Potatoes and sorgo continue to make a vigorous growth. Corn has finally recovered from the effects of the hail received 3 weeks ago and is advancing rapidly. Corn plots, however, present a ragged appearance with the growth ranging from 2 or 3 inches to 20 inches in height.

Field work included thinning sorgo, spraying potatoes, duckfooting sweetclover green manure plots, disking plowed sod land, and hoeing intertilled crops, alleyways, and roads.

Maximum temperature, 100°; minimum, 56°; precipitation, 0.10 inch.

NORTH PLATTE:

The first four days of the week were warm with temperatures on Monday and Wednesday of 101° and 104° respectively. These were the first readings of 100° or over that have been recorded this year. A shower fell Monday evening, and during Wednesday night a torrential rain fell of a localized nature. The Weather Bureau recorded 0.26 at North Platte, 0.85 was recorded at the bench station, and 1.50 inches at the table station. There was considerable run-off, but the moisture was very beneficial to corn and sorghums. Today (July 13) there is a high wind from the southeast and considerable soil blowing from bare fields and roadways.

All the spring small grain plats were mowed during the week and also all the winter wheat after corn, wheat, and a few fallow plots. Most of these plats contained very little grain, and Russian thistles had made a good growth. No yields will be taken on the plots that were mowed. The Early Kalo plots were cultivated, and the corn is being cultivated for the third time.

Dr. K. S. Quisenberry visited the station during the week.

Maximum temperature, 104°; minimum, 60°; precipitation, 1.61 inches.

AKRON:

The first 100° weather was reached this week but that for June ranged well over 90° a goodly portion of the time and was too hot for the small grains, many of which had been hailed to the ground May 29. Spring wheat not badly injured then has ripened prematurely. Harvesting of plots and nursery has been in progress. Corn and row crops were cultivated for the second time. These row crops do not seem to be suffering, but the beans have hardly made any growth since emerging. Thunder showers with some hail were general all week in this section, but none happened to center over the station.

Dr. Hurley Fellows arrived Friday to harvest his foot rot nursery, and to talk over plans for more limited seedings this fall. Dr. K. S. Quisenberry arrived this Saturday morning and was met here by Dr. D. W. Robertson and Mr. Otto Coleman of the State College staff. Together they inspected the

nursery and variety plantings and decided on harvesting and threshing plans. They also discussed more limited seedings this fall.

Maximum temperature, 104°; minimum, 54°; precipitation, 0.34 inch.

COLBY:

This week has been hot and dry with rain threatening and light showers falling somewhere in the vicinity nearly every night. In most cases the showers were just heavy enough to delay combining for several hours in the morning. Wheat harvest proceeded apace, however, and is drawing to a close. The yields run all the way from almost nothing to about 45 bushels to the acre. Most of the good fields are running at about 20 bushels to the acre. The test weight is running mostly between 55 and 58 pounds. The protein test will probably average about 15 percent, appreciably lower than last year.

The two winter wheat plots on the DLA project which will be harvestable will be ready for the binder the first of the week. The spring wheat yields ranged from 2.7 on 4A to 8.0 on MC C and averaged 4.9 bushels. The barley yields ranged from 4.2 on MC B to 9.4 bushels on 406 D and averaged 7.5 bushels. The fallow plot yielded 7.1 bushels, the third lowest of the 8 plots. The oat yields ranged from 5.3 on 9C to 15.6 on MC A and averaged 9.5 bushels. The fallow plots MC C and 8 C yielded 14.7 and 10.0 bushels, respectively.

Maximum temperature, 103°; minimum, 58°; precipitation, T.

HAYS:

The weather has been generally clear and varied in temperatures with considerable wind. Threatening rain storms approached on three different days but disappeared without precipitation.

Since the ground became dry enough for harvesting, following the rain the first of the month, good harvesting weather has prevailed. Most of the harvesting in this locality is now finished, although there are a few fields in which farmers are still making an effort to get some wheat out of the weeds. The yields and the quality of the wheat are generally disappointing.

Except for a few plots on the project, on which an unsuccessful attempt was made to harvest the wheat with a combine, yield determinations are being made by the rod-row method. Following the collection of the samples for yield determinations, the plots are being mowed at a height of about 6 inches. The collecting of samples and mowing will be finished today. The growth of wheat and weeds will then be raked off the plots and stacked for feed.

In addition to the harvesting during the week, all corn, kafir, milo, and fallow plots were cultivated.

In our report last week we stated that the precipitation was 3.61 inch, but we failed to mention that the amount recorded on the Experiment Station campus was 4.03 inches.

Maximum temperature, 98°; minimum, 55°; precipitation, 0.02 inch.

GARDEN CITY:

Only a trace of moisture was received this week. Temperatures were rather warm, for on 3 consecutive days the maximum was 101° or above. Two days were 101° and one 102°. The air was slightly dusty on one day.

Harvest was completed this week, and some very good yields of barley were received. Barley on fallow prepared with an ordinary lister yielded more than that on fallow prepared with a basin lister in every case in which they were comparable. This was true even for plots listed up and down the slope, which was contrary to expectations. However, several years results will be necessary before any definite conclusions can be drawn.

Other field work consisted of cultivating fallow plots, thinning sorghums, and taking soil moisture samples.

L. E. Call, Director of Experiment Stations, Kansas State College, T. B. Stinson, Superintendent of Tribune, Kansas, station, C. O. Grandfield, Agronomy Department, K. S. C. and Leon Wenger, Fort Hays Experiment Station, were station visitors.

Maximum temperature, 102°; minimum, 59°; precipitation, T.

TUCUMCARI:

Higher temperatures, with increased drought injury, marked the week. Precipitation this month to date totals, 0.26 inch; June precipitation was 0.28 inch. The total for the year to date, 5.34 inches, is some 3 inches below the long-time normal for the period.

Ranges throughout northeastern New Mexico are generally parched and brown. Wheat yields where the crop was worth harvesting were relatively light. Many old headers and header barges were resurrected for harvesting the short, uneven weed-infested crop. Row crops are generally poor and weedy, suffering acutely in many places from drought.

Station work included knifing and cultivation of plots and increase crops, and hoeing and planting the last date of cowpeas, grain sorghums, and sorgos. It is very unlikely that full stands on any of these late plantings will emerge until rain is received. In spite of adverse climatic conditions, very few station crops have been severely injured, although early rain is essential if growth is to continue.

Maximum temperature, 106°; minimum, 64°; mean temperature, 84.4°.

DALHART:

A continuation of the drought has merely accentuated previous drought observations. Hoeing of plots to get escaped goatheads has been continued. These weeds are especially aggravating during a drought period when cultivation is impractical. The Sedan kafir head-row nursery was thinned. The last date of the sorghum varieties will be thinned the coming week. Corn and the early planted sorghums roll badly during the greater part of the day. Only slight loss is being experienced on the later emerged seedlings, although a few of them have reached a dormancy period. The one outstanding feature of the row crops on the rotations is the excellent emergence obtained on the spring worked and listed (G) plots, in contrast to the absence of plants on the plots which are merely listed at planting time.

Annual weeds on hard ground are now burned to a crisp except for a few Russian thistles in a few locations.

The late cherries and a few plums were picked this week. The cherry crop was much above average this year, both for yield and quality.

Maximum temperature, 106° (this ties the previous high at this station, which has been reached in only two other years); minimum, 60°; precipitation, trace. The precipitation since June 1 is 0.28 inch; the precipitation since January 1 is 4.56 inches, which is less than half of the 33-year average for the same period.

LAWTON:

Peak temperatures for the season to date occurred on the 10th and 11th when maxima of 98° and 100° were recorded. This short heat wave was quickly dispelled by 1.42 inches of precipitation on the night of the 11th and subsequent temperatures of 63° to 85°. July rainfall now totals 3.22 inches or nearly one-fourth inch more than the normal monthly total. The last rain

was accompanied by a severe wind and electrical storm, and erosion on some of the rotation cotton plots was quite injurious.

The moderate temperatures that have prevailed in July so far offer a decidedly sharp contrast to the record breaking periods of heat in recent years.

One of the largest feed crops-sorghums and corn - raised in a good many years now seems to be assured. Although cotton plants on the upland are not very large, formation of squares appears to be quite prolific.

Threshing with the exception of a few seed plots of wheat, oats, and barley was completed during the past week.

WOODWARD:

Daily maximum temperatures during the week ranged from 90° to 104° with relatively cool nights. There was very little cloudiness and only 0.01 inch of precipitation.

Corn in the MC series, with the exception of that on fallowed land fired badly. Late plantings of Sooner and Wheatland milo were made under conditions favorable for rapid germination. Reseeded listed plots of kafir milo, and broomcorn emerged with very good stands. Wheat plots requiring cultivation immediately after harvest have been worked according to varied cultural requirements, surface moisture being satisfactory but the stubble quite weedy in most instances. Cleaning grain, taking test weights, and nursery threshing is in progress at the seedhouse.

Damage to the sorghum breeding project from last week's torrential rain was not so severe as first thought. Late variety plantings made July 10 germinated with unusual rapidity, emerging July 14. Sooner milo for increase was also planted. Row kafir in the terraced increase field received a second cultivation.

In the tomato improvement project, some very promising early hybrid selections have been noted, several of which were picked for seed. The vegetable garden yielded an assortment of material including early Cheyenne pumpkin, turnips, kale, kohlrabi, and summer squash. Windbreaks, vineyards, orchards, and the contour tree belt were cultivated. Various hedges have been pruned and certain trees, damaged by wind, repaired. Flowering willow and Vitex species are now in bloom.

Dr. L. R. Powers of the Cheyenne Horticultural Field Station collected material for cytological studies in the cooperative tomato breeding project. L. P. Merrill, Regional Conservator, Fort Worth, and party were also visitors

Maximum temperature, 104°; minimum, 57°; precipitation, 0.01 inch.

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# WEEKLY STATION REPORTS

OF THE DIVISION OF

## DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

46148

JUL 20 1940

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REPORT FOR THE WEEK ENDING JULY 20, 1940.

HAVRE:

The week was characterized by hot, dry weather, with terrific winds followed by light thunderstorms practically every evening. Precipitation was too light to be of benefit to crops.

Work in the experimental field consisted largely of harvesting winter wheat plats and certain early oat and barley varieties. Practically all of the oat and barley nurseries have also been harvested. A great deal of time has been spent in the corn breeding project; inbreeding certain early lines is nearly completed, with numerous later crosses now in progress. Spring wheat in the plats is ripening very rapidly, with indications of rather poor yields. The spreading of grasshopper bait was continued.

General farm work has consisted of cultivating fallow and harvesting a strip of oats for grain in the west field. Considerable work has been done in levelling one of the alfalfa fields that was plowed up.

About 125 local people visited the station Thursday evening, having dinner at the barracks building and spending a couple of hours going over the grounds to see the work in progress. The local Chamber of Commerce sponsored the meeting, it being their quarterly joint meeting with the Kiwanis, Rotary and Lions Clubs. Some of the women of the South Mountain View community put on a splendid chicken dinner. A sound car added greatly to the effectiveness of the meeting.

Maximum temperature, 94°; minimum, 51°; precipitation, 0.12 inch.

JUDITH BASIN:

Showers on two days during the week totaled 0.19 inch and although a bit helpful seemed merely to settle the dust temporarily. Conditions are acute regarding spring sown crops which are suffering from the continued drought and grasshopper infestations. Dust storms throughout the area on several days emphasize the extent of the drought.

Rotation winter wheat plots have all been cut and also some barley and winter wheat in the nurseries. Spring wheat and oats are firing badly, and barley generally has failed to head and is drying up in the boot. Many plots of spring sown crops no doubt will result in failures this season. Corn has suffered very little so far and with rain would produce a good crop.

The 31st Annual Picnic was held on Thursday with a small crowd somewhat slow in arriving. The attendance was estimated at between 800 and 1,000. Considerable interest was manifested in the tour of the station projects, the band concert, and speaking program.

Visitors on the picnic program included Dr. A. L. Strand, President of Montana State College; R. J. McKenna, Acting Chairman of the State A.A.A. Committee; Leroy K. Smith, Manager of the Federal Crop Insurance Corporation; and Fred E. Entermille, A.A.A. Fieldman of the Western Division.

Maximum temperature, 93°; minimum, 49°; precipitation, 0.19 inch.

HUNTLEY: (Week ending July 13)

Relatively high temperatures throughout the week and the exhaustion of soil moisture have hastened the maturity of small grains before the heads were well filled. All plots have burned badly during the last few days, so that yields of grain and straw promise to be rather light. Corn and other row crops show some wilting during the hot part of the day and revive during

the night. Alfalfa seed is setting heavily, but the plants are showing the effect of drought and there is some doubt that the seed will fill well.

Tillage of fallow plots in the rotation field was completed, and all roads were again cultivated. Fall pigs were removed from the alfalfa pastures and sold to the local packing house at top prices.

Maximum temperature, 101°; minimum, 54°; precipitation, 0.

HUNTLEY: (Week ending July 20)

With the exception of spring wheat in rotation 570, all small grains in the rotation plantings dried ripe and were harvested during the week. On some plots the straw was very short making it difficult to gather the crop with the binder. Grasshoppers are moving into the cultivated fields from roadsides and rangelands but to date have not been numerous enough to materially injure crops. Corn and other late crops are showing increased injury from drought, although in no case are they too far gone to be revived by a good rain.

Hogs on peas pasture were weighed and moved to the Sudan grass-soybean plot in the series of annual-crop pastures. Other field work consisted of roguing the winter wheat smut nursery, detasselling corn in the breeding block, and cultivating alleys.

Official guests included H. L. Westover and H. M. Tysdale of the Division of Forage Crops and Diseases.

SHERIDAN:

Warm weather continued over the entire week, with late afternoon or evening showers on five days, but with precipitation ranging only from a trace to 0.18 inch. Harvest of the main crop of small grain was completed with the exception of the varieties of spring wheat, a part of the oats varieties, and a field of oats sown late for pasture but not used to any extent for that purpose.

Corn, while showing no improvement of its condition of a week ago, does not appear to be in any worse condition, still curling badly during the day but recovering over night. Sorghum made a rapid growth, although Sudan grass in close seedings wilted noticeably during the day. Combining small grain is now general over this section.

W. L. Quayle, and O. K, Barnes of the Soil Conservation Service, were station visitors on the 13th.

Maximum temperature, 100°; minimum, 56°; precipitation, 0.35 inch.

DICKINSON:

Showers of 0.47, 0.44 and 0.41 inch on the past three days have greatly improved the condition of late crops. At the airport 6 miles south about twice as much rain fell in each shower as at the Station. Hail damaged crops severely in several small areas in the district during the week but only a trace fell at the Station.

These rains came too late to be of any benefit to early oats and barley and will not help early wheat very much. Quite an acreage of wheat and feed grains was seeded late after the heavy April rains, and these late-seeded crops may now yield better than early grain. Corn will be greatly improved, as it was just beginning to fire as a result of the drought. Early corn has started to tassel. Stands are fairly good and the yield of fodder should be about normal, although the plants are typically short.

Oats and barley on the rotations were cut on July 15, 17, and 18. Yields probably will average less than ½ of the 1939 crop. Yields on fallow

land and on spring plowed land probably will approach the Station averages for these crops. Spring wheat on the rotations has been severely affected by dry weather during the past month but may yet approach average yields.

In 1939 rainfall from May 1 to July 15 amounted to 9.48 inches; during the same 10-week period in 1940 only 2.63 inches was recorded. The heavy April rainfall this year carried over to some extent, but the contrast in crop growth in the locality is marked.

Crested wheatgrass seed was harvested during the week.

Visitors included, Dr. L. R. Waldron, Plant Breeder, North Dakota Agricultural Experiment Station; J. A. Clark and T. R. Stanton, Cereal Crops and Diseases; and a group of FSA supervisors of Southwestern North Dakota.

Maximum temperature, 101°; minimum, 52°; precipitation, 1.41 inches.

MANDAN:

Horticulture: Harvesting of small fruits, including red currants, gooseberries, raspberries, and Chinese cherries has been in progress during the week. The yields were very good and the quality was fair to excellent. Hoeing field plots and watering the propagating nursery is going on. Much spraying and dusting of potatoes has been necessary to combat the swarms of blister beetles which have invaded the station plots this year. Dutox so far has seemed to have had the most deadly effect on the pests. Vegetables harvested from the acre garden include peas, wax beans, beets, cucumbers, and vegetable marrow squash. Tomatoes are slowly ripening but none has been harvested yet. Bagging of silks in the sweet corn breeding project was started on the 18th. Some effect of the continued drought is noticeable, but on the whole this project looks good so far. Flower beds on the grounds are now about their best, and lawns and shrubbery are in good condition.

Agronomy: Rains amounting to 0.84 inch brought temporary relief to parched fields, though in most cases drought damage had gone too far to remedy severe reductions in grain prospects. Crop conditions around the State are spotted. The same locality may have ranges in appearance from poor to very good. Apparently this will be a good year to show up differences in tillage preparation. Corn and sorghum varieties at the station are in fine condition and with normal rainfall from now on should make better than average production.

Bromegrass and crested wheatgrass seed blocks were harvested during the past three days. These seed crops were materially damaged by moisture shortage at the critical period.

A group of 30 field men of the FCA made a tour of the station on Friday the 19th. They were especially interested in the crop rotation and tillage methods, wheat varieties, and grass breeding and selection nurseries.

Maximum temperature, 98°; minimum, 55°; precipitation, 0.84 inch.

BELLE FOURCHE:

Hot, dry weather continued throughout the week. Beneficial showers occurred in nearby localities, but they dwindled to a few drops of rain at the station. Only 0.12 inch precipitation has been received during the past 4 weeks, and the limited crop prospects remaining after the destructive hail last month are rapidly fading. Second growth oats has been unable to complete heading, and intertilled crops apparently have exhausted most of the available moisture stored in the soil.

The annual picnic was held at the station on July 20. Speakers for the occasion were Congressman Francis Case; E. H. Everson, State Secretary of Agriculture; and A.M. Eberle, Director of South Dakota Extension Service.

Maximum temperature, 97°; minimum, 57°; precipitation, 0.02 inch.

NORTH PLATTE:

A good rain fell during Sunday night which benefitted the corn and sorghums. The rain was torrential and left the bare fallow plats and fields smooth. High winds the first part of the week caused considerable blowing from these plots before they could be cultivated. The total precipitation for July to date is 2.44 inches, which is slightly below the normal for the month.

Threshing was completed during the week, and yields were as follows: Only 43 out of a total of 123 winter wheat plots were harvested, and they averaged 12.0 bushels per acre. Of the plats harvested, 30 were fallowed and averaged 15.3 bushels. The high yielding plat made 30.0 bushels per acre. Two plots after corn spaced 120 inches yielded 2.8 bushels. These were the only plats following corn that were harvested. Wheat after potatoes which were previously fallowed yielded 10.2 bushels, after potatoes which were planted on stubble 6.4 bushels, and after potatoes which were after corn 3.6 bushels. No spring small grain plats were harvested.

Blister beetles are doing considerable damage to the potatoes. Spraying has been done in attempt to get control.

Maximum temperature, 101°; minimum, 63°; precipitation, 0.77 inches.

AKRON:

Late summer rainfall for feed crop production is now the deep concern of farmers in this general region. At the Station there have been but three measurable rains totalling 0.54 inch since June 6. Some localities have fared better and are not now in such dire need for moisture. Corn, proso, beans, and the sorghums still remain in potentially capable position, but the first crop is now ready to tassel and hence that close to a critical period, and the sorghums which normally head between August 5 and 15 are now only about 8 to 10 inches tall.

Teams and men have been busy all week uniformly cleaning the plots for early fall and spring cultural treatments, harvesting nursery, subduing weeds, and cutting dead wood from the orchard trees.

Maximum temperature, 97°; minimum, 59°; precipitation, T.

COLBY:

This has been a dry, hot, and windy week with rain threatening frequently but almost none falling. For the first time in a long while appreciable soil blowing was in evidence on three days of this week. Corn and sorghum fields are getting short of moisture. These crops wilt rather badly on most fields on hot days.

Corn on the plots is making rapid growth and is now about 2 feet high. The sorghums are also growing fast and are beginning to peep above the lister ridges.

Plots MF 11 C and MF 11 D, the only winter wheat plots worth harvesting, were cut with a binder Tuesday. The others were either mowed or tilled with a oneway, plow, or lister. The ground was dry or almost dry on all the plots. Some had a fair stand of wheat mixed with a growth of thistles and other weeds, but there was almost nothing in the heads. The fallowed plots as a whole had almost no stand of wheat and a heavy growth of thistles almost 2 feet high. The stands of wheat were fair on nearly all the plots in April but were thinned out, chiefly by pale western cutworms. The fall tillage following the spring small grains has also been done.

Maximum temperature, 105°; minimum, 63°; precipitation, 0.08 inch.

HAYS:

The weather has been hot and dry. Row crops are wilting badly and drilled feed crops are suffering severely from drought.

Grasshoppers are numerous and are beginning to do some damage to the corn plots. Jackrabbits are also damaging some of the plants.

During the week the growth of wheat and weeds that was mowed has been removed from the wheat plots. A large number of soil samples have been collected for moisture determinations and a number for nitrate determinations on plots that are to be prepared for wheat. The initial tillage operations in the preparation of a seedbed for wheat has been done on a number of plots. This work, however, is not finished.

Maximum temperature, 106°; minimum, 64°; precipitation, none.

GARDEN CITY:

Rainfall this week amounted to 0.28 inch, which gave the sorghums a small boost. Temperatures have been rather high for on 4 of the 7 days the maximum ranged from 102° to 104° and on the other days it was in the upper nineties. Dust preceded the rain on Saturday and at times it was rather severe.

Field work consisted of early fall tillage such as plowing, listing and one-waying as scheduled. Sorghums were cultivated and soil moisture samples were taken.

Row crops are making fair growth although the drilled Sudan grass is commencing to burn. Grasshoppers and jackrabbits have caused very little injury thus far this year.

B. F. Kiltz, S.C.S., Amarillo, Texas; Donald Cornelius, S.C.S., Manhattan, Kansas; and C.O. Grandfield, Agronomy Department, Kansas State College, were station visitors.

Maximum temperature, 104°; minimum, 64°; precipitation, 0.28 inch.

TUCUMCARI:

The severth year of drought in succession is uneventfully progressing, with ranges parching, trees losing their leaves or dying, and with row crops persistently insisting on growing in spite of intensely unfavorable conditions. Precipitation this month to date totals 0.26 inch, that of June was 0.28 inch, and the total for the year to date is 5.36 inches. This is 62 percent of normal for the 6 2/3 months.

Ranges throughout northeastern New Mexico are generally dry and brown. Row crops are small, late, and in many instances very weedy. Cattle are still in good condition.

Station sorghums planted at the close of May have suckered fairly heavily and have not fired. They still offer prospects of good yield if rains occur soon. Plots planted late in June have not been thinned, as it is unsafe to disturb the dry soil under present conditions. Growth is continuing normally. Late planted grain-sorghums, forage-sorghums, and cowpeas, planted June 12, emerged to good stands in spite of very dry surface soil, and seem to be in good condition. It is certain that unless rain occurs the earlier planted crops will show drought injury very soon.

New grass seedings are surviving drought and weed competition, although showing intense injury. Grapes promise to make fair yields. Frost killed all tree-fruit buds or blooms in April.

Maximum temperature, 103°; minimum, 65°.

LAWTON:

Weekly temperatures gradually increasing to a peak of 102° on the 20th were followed by a 2-inch rain on the night of the 20th. The 5.22 inches received to date during the month makes it the wettest July since 1933. Although 1.42 inches of precipitation were received on the 11th, vegetation of all kinds was manifesting evidence of the need of additional moisture.

The seasons growth of cowpeas has been rank and a heavy crop of seed was set. Foliage began drying up and the rotation plots were harvested as a hay crop on the 20th.

Tillage of the small grain stubble fields with the oneway disk was nearly completed during the week. All stubble fields supported a heavy growth of foxtail, crabgrass, and various kinds of thistles that left the ground dry and hard.

The third cutting of alfalfa, made the first of the week, produced a fair crop of hay.

The first cotton blooms appeared in the rotation plots about July 15. Threshing of seed plots of wheat, oats, and barley was completed. Cotton was given its 5th cultivation and, as in the past, a heavy rain ensued shortly thereafter.

WOODWARD:

Clear skies, moderately warm weather, and no precipitation prevailed. The average daily maximum temperature, was 99°. The effect of long continued local drought is beginning to show up in reduced summer growth of native pastures, wilting of Sudan grass and close drilled sorghums, and firing of corn and other vegetation. Precipitation from August 1, 1939, to date has totalled only 12.14 inches or about 53 percent of normal for the last 12 months. However, since January 1 of this year 9.93 inches or 70 percent of the average has been recorded.

Owing to drying of leaves all D. L. A. corn plots except MC: C, F, and G were harvested. Hoeing weeds from row crops, mowing weeds in the grass contour rotations, cultivating and grading roadways, and small grain seedhouse work comprised the principal activities of the week. Tomatoes and other vegetables were irrigated. First ripe commercial varieties of tomatoes were harvested on July 19, whereas several hybrids began ripening July 1. Early plantings continue to bear quite well. Some sweet corn selections planted May 15 are now ready for use. The non-irrigated section of the vegetable garden, aside from late sweet corn and vines, has practically dried up.

Leaf and stem samples of 15 major species of grass and browse plants on the range unit were obtained for detailed chemical analyses by the Agricultural Chemistry Research department of the Oklahoma Experiment Station, cooperative with this Station and the Division of Animal Nutrition, BAI. Forage samples from several breeding nurseries totalling 33 species of grass, three of browse, and two of legumes collected at 6 stages of growth during the current season, together with soil samples from the same location were forwarded to the Agronomy Department of the Oklahoma Station for determining chemical composition at different stages of growth and also in relation to soil.

An increased irrigated block of Eragrostis Curvula in rows was planted in the SCS nursery. The diversion terrace on the west place, slightly damaged by torrential rain early in the month, has been repaired. Clipping weeds on contour spring seedings of grass is in progress. The Noble cultivator used on a weedy tract in the field did a satisfactory job, killing all plant growth and leaving the residue upright on the surface. Mr. Hershel D. Price, Junior Agronomist, Nursery Division, SCS reported for duty on the 16th.

Maximum temperature, 104°; minimum, 66°; precipitation, none.

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# WEEKLY STATION REPORTS

OF THE DIVISION OF

## DRY LAND AGRICULTURE

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U. S. DEPARTMENT OF AGRICULTURE

46148

JUL 27 1940

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REPORT FOR WEEK ENDING JULY 27, 1940.

HAVRE:

The first four days were extremely hot and dry, maximum temperatures ranging from 95° to 97°, whereas, cool, unsettled weather prevailed during the latter part of the week. Precipitation Friday night totaled 0.28 inch.

Activities in the experimental field consisted of harvesting D.L.A. spring wheat and barley; date of seeding wheat, oats, barley and rye; the cereal nurseries; and barley varieties. All fallow plats were cultivated. Indications are that the continued drought for the past six weeks has greatly reduced yields of all spring-planted cereals.

Farm work for the week included cultivation of fallow in the west strip field, irrigation of the campus, and clipping weeds and grass in the bull pasture. An attempt was made to irrigate the alfalfa hay land, but owing to the small flow of water in the creek very little ground was covered. Land leveling operations continued on the plowed-up alfalfa fields. Owing to the heavy influx of grasshoppers, extensive bait spreading continued.

The livestock at the lease were checked over and found to be in excellent condition. Vegetation and water are adequate.

Station visitors included Dr. C. E. Leighty; J. M. Stephens, J. Allen Clark, and Messrs Loy and Williams of the Regional office of the Soil Conservation Service.

Maximum temperature, 97°; minimum, 48°; precipitation, 0.30 inch.

JUDITH BASIN:

A good rain of 0.60 inch on the evening of the 25th broke the disheartening drought which had continued since early in June. Corn, late spring wheat, and pastures will benefit from the available moisture and the cool weather which has followed. The rain was too late for winter wheat, barley, oats, and crested wheatgrass for seed, as these crops have all been harvested. Temperatures showed a large spread varying as much as 33 degrees in maximum readings during the week.

Wheat, oats, barley, and flax in the nurseries are being harvested. Harvesting of crested wheatgrass for seed has been completed, and station yields are expected to be equal to or slightly better than last year.

Grasshoppers have caused a great deal of damage not only to crops but to trees and shrubs as well. Migrations have been noted from all directions this year, depending on the wind direction. During the last two years hoppers came mainly on a southeast wind.

Official visitors were numerous and included Dr. C. E. Leighty and J. M. Stephens.

Maximum temperature, 98°; minimum, 47°; precipitation, 0.73 inch.

HUNTLEY:

Temperatures above 100° on 3 days early in the week dried out winter wheat to the extent that combining could be started on some of the farms in this section. Corn fired badly during the period and it is doubtful if the crop will produce much grain although a fair fodder yield may yet be obtained. Alfalfa seed has set heavily on the row plantings but rains will be needed to fill it well.

Station work has consisted of harvesting the last of the small grains, putting up the second cutting of alfalfa, duckfooting fallows, and hoeing corn.

Dr. C. E. Leighty and J.M. Stephens were among the official station visitors of the week.

Maximum temperature, 103°; minimum, 49°; precipitation, 0.13 inch.

SHERIDAN:

Harvesting of small grain was completed the first of the week, except for late dates of seeding, the most of which probably will not be harvested at all. Heavy firing of some of the corn is now evident, as a result of the continued hot weather with no rain, with the most firing to date on fall plowing. Some firing has occurred with close seedings of Sudan grass, but most late crops still remain in good condition.

The annual field day was held the 24th, with a good attendance. H.J. King, President of the Wyoming State Farm Bureau, and W.L. Quayle were the principal speakers.

Cooler weather prevailed over the last couple days, and there were several traces of rain.

Maximum temperature, 106°; minimum, 52°; precipitation, trace.

DICKINSON:

High temperatures early in the week were followed by rain and much cooler weather. A heavy thunder shower on Thursday afternoon accompanied by strong wind resulted in 0.62 inch precipitation. Last night another rain amounted to 0.70 inch. Run-off was not excessive in either of these. Hail damage was reported in some localities but the station again escaped. Rainfall in the past two weeks has amounted to 2.8 inches. This has wet the surface soil thoroughly and has been of great benefit to most growing crops.

Most of the wheat on the rotation plots was harvested on July 22 and 24. A few plots of the common wheat and winter wheat on the Normal School Field are still immature. Durum, which is later, will benefit more from rains and may outyield common wheat this year. Wheat harvest is being complicated by the rains. A number of small combines have been sold in the district. The grain is generally short, and Russian thistle and other weeds have grown rapidly so they will bother in harvesting and may result in a lower quality of the crop with any type of harvester used.

Corn has made rapid growth during the week and is now nearly fully tasseled. Sweet corn in the garden, which was planted early, will be ready to use during the coming week.

Potatoes on the growing plant are beginning to sprout since the rains. Sorghums have made rapid growth during the week.

Tree fruits have increased greatly in size. Although some was blown from the trees the amount of fruit generally is still sufficient.

Grama grass made rapid growth during the past two weeks. To date very little of this grass has headed in pastures or hay land but a fair seed crop may now develop.

Visitors included Dr. C. E. Leighty, J. M. Stephens, T. R. Stanton, F. A. Coffman, J. A. Clark, and C. W. Lambourn.

Maximum temperature, 95°; minimum, 54°; precipitation, 1.48 inches.

MANDAN:

Horticulture: Bagging of ears and tassels in the sweet corn breeding project has been in progress during the week. Little selfing and crossing has been accomplished due to high winds and intermittent showers. Vegetables in the acre garden are continuing to yield quite well. Varieties now harvested include cabbage, cauliflower, peas, wax beans, beets, carrots, cucumbers, and tomatoes. Work on the grounds has included trimming hedges, mowing lawns, and hoeing weeds on roads. Gooseberry picking has been in progress throughout the week. The crop is unusually large. Minn. 17, Sel. 30-6, Sel. 24-19, Transparent, Sel. 24-1, Minn. 2, Sel. 30-4, Carrie, Houghton, Sel. 26-1, and Pixwell were among the highest yielders. Sel. 26-1, an early red

variety, looked especially good this year. The recent rains have been very beneficial to horticultural crops, as distress from drought was becoming increasingly evident.

Agronomy: The highest temperature for the year so far occurred on the 23rd. With it came rapid ripening of grains and some signs of severe wilting on the part of corn. Relief for this crop came the last two days of the week with a rainfall of an inch. Harvest of small grain plots in both main and south field rotations and tillage experiments was about two-thirds completed by the end of the week. Judging from appearances yields will be light. In harvesting, one can not help noticing how free bundles are from Russian thistles, which in most recent years seemed to make up the bulk of the material harvested.

Several hundred self, sib, and cross pollinations of Northwestern dent were made, about 150 of which were in an increase block of 19 high yielding lines.

Maximum temperature, 99°; minimum, 56°; precipitation, 1.15 inch.

BELLE FOURCHE:

The first half of the week was unusually hot, but welcome relief from 9 consecutive days of high temperatures was afforded by cool weather on July 25 and 26. A torrential rain accompanied by an extremely high wind between 6:30 and 7:00 P. M. on July 25 did considerable damage to crops, trees, buildings and other property. The temperature fell 24° within 15 minutes, and although no hail was observed, the damage to leaves of sugar beets, corn, and other crops resembled hail injury. The storm was followed by intermittent thunder showers during the night, and a total precipitation of 1.28 inches was recorded. A network of deep ground cracks prevented the run off from being excessive. Additional showers occurred on 4 other days during the week, but they were too light to be of any benefit.

The high temperatures and hot winds were injurious to all crops. Corn leaves were curling badly, potatoes were suffering, and second growth oats were beginning to burn. The heavy rain was received in time to save corn and potatoes and should enable oats to produce some grain. Corn was partially lodged by the storm, and the leaves of corn and sorgo were shredded and bruised.

Maximum temperature, 105°; minimum, 53°; precipitation, 1.68 inches.

ARCHER:

The weather during the period July 7-27 was hot and dry without effective precipitation. The small grain plots are being clipped with the mower. Only those plots which were fallow last year or had had at least two years of row crops preceding the small grains have produced any grain yield. Millet and drilled Sudan grass are badly burned. Corn has rolled even during the last two days of cool temperatures. Potatoes and beans are at a standstill. Station activities consisted largely of weeding and preparing for the annual Field Day which was held July 10. About 200 farm folk were in attendance.

R. E. Uhland, M. M. Hoover, and Wayne W. Austin, the Soil Conservation service, E. G. Moore, the Division of Publications, B.P.I., Dr. A. C. Hildreth, the Cheyenne Horticultural Field Station; H. M. Benedict, L. C. Newell and L. M. Peterson, Division of Forage Crops; and Director W. L. Quayle were station visitors.

Maximum temperature, 100°; minimum, 52°; precipitation, 0.61 inch.

NORTH PLATTE:

A heat wave extended over this area during the first 5 days of the week. Temperatures of 100° or higher were recorded on 4 of the days. A reading of 110° was recorded on Wednesday. The all time high reading of 111° was recorded in July 1936. A light shower fell Thursday night, and temperatures moderated the last of the week.

Field work consisted of weeding all fallowed plats, subtilling all stubble plats to be fallowed next year, preparing of roadways for seeding Sudan grass, and the plowing a few of the plots to be early fall plowed. The after-harvest soil sampling is nearly completed.

Corn is tasseling and the early seeded grain sorghums are heading. Most plots of corn are looking fair, although there is some burning of the upper leaves and tassels in some plats. With immediate rains and continued moisture in August, a fair corn crop can be expected. Potatoes are showing the effects of the hot, dry weather and the tops are drying up.

Maximum temperature, 110°; minimum, 65°; precipitation, trace.

AKRON:

Scattered light showers last week end and this punctuated by a heat wave that reached a maximum of 105° Thursday has characterized the weather. These recent showers have been most common over the country south from Akron. However, most everyone is complaining severely about the intensity of the midsummer drought. There has been no relief here at the station, though row crops are miraculously holding out.

Rotation plots were cleared during the week so far as harvesting is concerned, and cover left uniform over all. Harvesting of failed small grain plots is now well along to completion. Dead wood is being cut from the fruit garden planting. There is little life left in the older orchard trees.

B. F. Barnes visited Thursday, also J. J. Curtis and Otto Coleman from the State Agricultural College.

Maximum temperature, 105°; minimum, 56°; precipitation, 0.06 inch.

COLBY:

This was a very hot week and dry, except for a light shower Thursday night. Thursday the temperature rose to 113°, the highest on record. The maximum temperature was above 100° on 4 days. The wind was very hot on 3 days, and on 3 other days there was some soil blowing.

Corn deteriorated almost beyond recovery. This is a very critical time for corn, as it is entering the tasselling stage on most fields. The sorghums are holding their own fairly well so far. The ridges on the listed corn plots were leveled with a lister cultivator Wednesday. The corn averaged about 30 inches high. The sorghums are about 18 inches high.

Supt. Barnes of the Dalhart station visited this station Thursday evening and Friday. Dr. John H. Parker of the Kansas Wheat Improvement Association called Saturday.

Maximum temperature, 113°; minimum, 63°; precipitation, 0.24 inch.

HAYS:

Dry and extremely hot weather prevailed. The heat wave was broken yesterday by clouds which threatened rain, but passed over leaving but 0.01 inch of precipitation at this point. Good showers were reported within 30 miles north, east, and south. It is cloudy and cooler today.

During the week all early planted row crops as well as sown feed crops suffered severely from heat, the earliest planted crops suffering the most. Many of the top blades on the corn and kafir turned white. Some of the corn is actually burned. Late planted crops wilted severely but are not yet injured. The kafir on the project varies from 18 to 28 inches in height. The corn is from 36 to 48 inches high.

During the week the initial tillage was completed on all plots designated for early tillage, and considerable time was spent on soil moisture determinations.

Maximum temperature, 113°; minimum, 63°; precipitation, 0.01 inch.

GARDEN CITY:

Clouds gathered on several days during the week accompanied by thunder and lightening, but only a trace of moisture was received. Dust occurred on two days, but it was not severe.

On 5 consecutive days the maximum temperature was 100° or more and on two consecutive days it reached 108°, which is the highest since 1936.

The row crops are needing moisture, however, no burning has occurred except on the drilled Sudan grass and the plots where weeds are allowed to grow in the spring.

Field work consisted of cultivating and hoeing weeds and mowing Sudan grass.

B. F. Barnes was a visitor Friday.

Maximum temperature, 108°;minimum, 67°; precipitation, trace.

TUCUMCARI:

The hottest week of the year, with a maximum of 106° and a mean temperature of 85°, hurt ranges to a great extent. Row crops are still withstanding the drought exceptionally well. Rangos are parched and brown, but livestock remain in good condition.

During the past 60 days only 0.91 inch precipitation has occurred, and the total for the year to date, 5.69 inches, is 3.5 inches below normal for this period. To date July is the third hottest month on record, as well as the second driest July on record.

Work included watering of young evergreens, thinning of the second date cooperative plots, and beginning of plant counts.

Visitors included Gilbert R. Field, U.S. Engineer Office, Galveston, Texas; Karl V. Morin, S.C.S. Div. of Irrigation, Carlsbad, N. Mex.;and E.W. Johnson of the Woodward, Okla., station.

Maximum temperature, 106°; minimum, 66°; precipitation, 0.37 inch.
Evaporation, 2.967 inches.

DALHART:

A rain of 0.79 inch on Sunday night furnished sufficient soil moisture to warrant planting of the increase areas to Sudan grass, cowpea variety test, the late planting experiment, and the milo disease nursery. The surface moisture was getting short before planting was completed, but the emergences which are well started now should give stands on most of these plots. The cowpeas, which had showed only spotted emergences on most plots, are now emerged to uniform stands. Row sorghums are likewise filling in the stands where there were short skips. In addition to the completion of the planting, most of the row plantings and the tree plantings were cultivated.

Maximum temperature, 103°; minimum, 64°; precipitation, 0.84 inch.

LAWTON:

Hot, clear weather, a brisk wind velocity, high evaporation, and low humidity during the past week resulted in a heavy usage of soil moisture by the rank, vigorous vegetative growth of all row crops. Foliage on some of the corn is drying up. Plant growth and development of cotton was very satisfactory and blooms have come on rather slowly.

Cowpeas that were harvested on the rotation plots on the 20th ranged in yield from 2,350 to 3,300 pounds of cured hay per acre. The average yield of all plots was 2,821 pounds.

Protection of experimental sorghums from bird damage continues as a costly headache.

WOODWARD:

Temperatures somewhat above normal with nearly continuous southerly winds prevailed most of the week. The average daily maximum was 104° and evaporation totalled 3.407 inches. Scattered thunderstorms on the 22nd brought only light precipitation.

Remaining corn plots were harvested to prevent loss of leaves. Row sorghum wilted each day with no indication of firing thus far, however, close drilled sudan grass and sowed feed have burned in some places. Cotton is beginning to bloom. Reseeded listed sorghum plots were thinned and cultivated. Roadways in the west experimental field were graded and drainage courses repaired. Large weeds were hoed in various fields, windbreaks, and nurseries.

The 1939 grass selection irrigated nursery received another watering, stands and growth being very good. Under dry land conditions, well established spring grass plantings are surviving the recent heat and drought with relatively little injury, but later emerging stands now appear to be suffering to some extent. Fencing activities on the Range Unit continue, the first wire being stretched on the 26th along the west boundary line.

Maximum temperature, 107°; minimum, 71°; precipitation, 0.29 inch.